

L-4 LIBERIA: HARBEL Hill in Firestone Plantation with virgin rain forest. Large tunnels, gray silk, with scattered frass on medium sized tree in full shade. Several large nymphs collected at least one antipenult st. May be Parachirembia liberica ^{VIII-7-66} Boy Scout Corps

L-5 Same place but another hill. Two genera cultured ① a teratembiid (collected a male) in inconspicuous galleries in fine moss galleries partially in bark surface. Many stages including at least one penult of a very small sp. ② a larger species genus? nymphs chestnut brown, segments conspicuous, very active, about 6 cultured. In individual galleries usually following vertical grooves of bark. Tunnel surface dirty ^{VIII-8-66} in Lotts house.

L-6 LIBERIA: 10 MI. N. GBANKA ^{VIII-11-66} Bark curves of large tree remnant of former dense rain forest in rolling hills. Tunnels exposed visible from road colony 2' x 3'. Parachirembia some mat of 9, penult and many 3rd instar.

= STOP 3 L-7 LIBERIA: 8 MI. N.W. BELFFANAI ^{VIII-11-66} Camp along river. Riverine forest. Large embiids in dirty galleries on large tree trunks and vines in deep shade. Possibly 2 spp. Parachirembia one entirely dark. Most $\frac{1}{2}$ - $\frac{1}{2}$ grown

= STOP 4 L-8 LIBERIA: 2 MI. E. KOLAHUN ^{VIII-13-66} where I photographed rice threshing Parachirembia on scarred tree trunk ^{small} in patch of old forest between agrie fields. No other colonies seen.

L-9 LIBERIA: CREST OF MT. NIMBA 1400 M ^{VIII-15-66} Cloudy wet zone Small species common in tunnels ramifying in moss on limbs of felled, rough-barked tree. At times 2 embiids per short gallery. At times silk visible on bark beyond edge of moss. Seems to be teratembiid all about same size but none with wing pads or could be apterous or absent. 1 juv. (?) ♀ of a large species perhaps rhagadocerinae, smoky black throughout under bark flake of standing tree.

L-10 Same place as L-9 Larger embiid, Parachirembia?, collected in great numbers in little patch galleries on undersurfaces of trunks and limbs of recently felled large trees. Silk inconspicuous, dusted with bark or fossil particles. Usually contain only one individual. Most in one stage — about half grown. Wing pads not conspicuous, if indeed present

L-11 IVORY COAST: TOULÉPLEU 250 M ^{VIII-18-66} Cultured 2 embiids one 1C-1 ♀ juv. Parachirembia + one small juv at base of large rain forest tree in coffee plantation.

Type
Culture
Nephelomilia
nimbata Ross

IC-2 IVORY COAST: 9 MI. N. MAN, VIII-19-66
 On bark of trees, rock surfaces in gallery rain forest in rocky canyon
 Silk clear blue-white, forming continuous patches with radiating galleries
 beneath. Common in exposed places along road. Must be Podosembia
 Most in early instars. Pale ~~100 m. 1966~~

IC-3 IVORY COAST: 9 MI. N. MAN VIII-19-66
 Same place as IC-2 but in dark forest. Dirty sheet galleries
 on surface of smooth-barked tree with large smooth flakes.
 Extended over a 3ft high area, 8 ft above ground, able to
 scrape off only lower section and get 3-4 adult ♀ of a smaller
Podosembia? Hope that they have mated.

IC-4 IVORY COAST: ~~5 MI. S.~~ BAFING FOREST RES. ON ROAD S. OF TOUBA
 VIII-19-66 400 M
 Gallery rain forest in river valley, subject to longer dry
 periods than coastal forest. Surrounding hills covered with
 high grass and low trees. Appears to be same sp. as IC-2
 on bark of large trees.

IC-5 IVORY COAST: 5 MI. S. TOUBA 450 M VIII-19-66 Camp
 Savanna woodland very similar to Katanga. Small embiids,
 possibly 2 spp., in and under bark crevices of dead twigs
 and limbs of live trees. Some of these are young of a large sp.
 ACANTHOPHYLLA

IC-6 IVORY COAST: Same place 1966
 Short galleries occupied by 1 small brown embiid on old weathered
 termite mounds about 3-4 ft high

IC-7 IVORY COAST: 10 mi S.E. TOUBA, 420 M VIII-20-66 (Stop 20)
Podosembia? very common on bark surfaces in high rain forest,
 especially at scars. Also occur in adjacent sav. woodlands in
 many situations including bark, small saplings, edges of latente rocks.

IC-8 IVORY COAST: 5 MI. S. SE. TOUBA, 800 M, VIII-20-66 (Stop 21)
 1 large ♀ and young from under rock on exposed ridge
 gallery extended up side of rock

IC-9 IVORY COAST: 14 MI. S. BAKO 450 M VIII-21-66
 2-3 adult B+W ♀ $\frac{1}{2}$ " long with 1st instar from under surfaces
 of freshly fallen branches on ground, elevated somewhat. Also in
 crevices on surface of large termite mounds. Webs dirty, inconspicuous

IC-10 IVORY COAST: SANANFÉRÉDOUGOU 400 M VIII-22-66 (Stop 23)
 Several 1st & 2nd instar under bark flakes of fallen tree with
 loose bark. Old, weathered, large web mazy. Savanna woodland
 in full leaf.

M-1 MALI: 13 MI. N. MANANKORO, 375 M VIII-22-66 Camp, Stop 24
 Open savanna woodland on low rise many large meadows
 on hard pan. Early instar cultures of prob same sp. as IC-10
 under similar conditions 2nd insta run very fast. Each
 embiid in a separate short tunnel.

M-2

MALI: 25 MI. S. GAROLO, 350 M, VIII-23-66

Open savanna woods with hard laterite ledges. Embiids in small patches of silk with a retreat into rock hole. Eggs laid on wall of hole, very tiny. Most nests had first instar clustered in ♀s all. Recent rain *Colyembia*

M-3

MALI: 5 MI. S. MARAKO 350 M VIII-23-66

Same sp. from identical environment and niche. preserved 2 ♀

M-4

MALI: BAMAKO, 405 M VIII-23-66

Small brown sp in matted leaves under stones in semi-shade. Dense scrub vegetation in full leaf. Arboretum preserve in cyn above town. Not a few juv. *Berlandenia*

M-5

MALI: SAME PLACE AS M-4 VIII-24-66

Same species of shaded ledge, naked tunnels radiate outwards over surface remaining devoid of food. Parent gall - like and speckled with granules. One ♀ and tiny 1st instar in nest. Egg had scores of tiny, tiny, naked eggs in walls of parent gall.

M-6

Same place

VIII-24-66

Colyembia

2 ♀ in dead twig & bark butt of low tree, buried with visible outside colonies. Seems to be same as M-1.

M-7

MALI: 40 MI. S.W. SAN, VIII-27-66, 300 M

Camp stop

Young embiids in tunnels radiating under thin bark of 4" sapling, fresh cut, used as a pole in ground. About 25 2-3rd instar collected. Had to winch out of this camp. *Berlandenia*

M-8

MALI: 10 MI. S.W. SAN, VIII-27-66 300 M

Young embiids numerous under bark flakes of shrub-like tree in tree clumps of dense scrubby savanna

M-9

MALI: 21 MI. E. OF MOPTI, 350 M, VIII-27-66 (on rd to Bondiagara)

Camp stop in reddish ledges of Bondiagara escarpment, scattered trees. This colony of brown ♀ and young under bark flakes near blaze on small tree trunk. *Colyembia*

M-10

MALI: same place

Small ♀ and young in matted leaves under stone. May be *Embia* Bt W ♀ and young under bark flakes of large tree. Some colonies had large galleries but no adult ♀. May be *Berlandenia* later found a few young next to cadaver of *Berlandenia* ♀, thus 2 spp in this culture.

M-12

MALI: BANDIAGARA VIII-28-66

Four young embiids on one tree, one per web under bark flakes. On nearly tree old broad tunnels seen.

Numerous small, banded, rust & cream, early instar scattered in dry bark of isolated trees on flat in front of village (many photos on roll 15).

HV-1 HAUT VOLTA: 5 MI. N.W. OUAHIGOUYA, 250 M VIII-29-66

Numerous banded small young in tree bark flakes both on trunk and piled up litter at tree base. Tree very large. In bean field in sandy savanna zone. 2 pale males collected in litter.

Boreomolis, b.

HV-2 HAUT VOLTA: 35 KM. S. OUAGADOUGOU, 200 M VIII-31-66

Roadside stop. B+w females and young under bark flakes of large trees along road in savanna woodland. One or two plain tan species under rocks and mottled leaves on wet ground along road. This culture is mixed.

Acantebia, b.

HV-3 Same place but only B+w. bark species.

Incidentally, *O. saundersii* was found on trees in Ouagadougou.

HV-4 HAUT VOLTA: 8 MI. N. PO, 300 M, VIII-31-66

Roadside stop in high dense savanna, high wet grass. Banded juveniles common on tree trunks of small trees in shade, individual nests under soft bark flakes.

Restionebia

G-1 GHANA: 22 MI. S. TAMALE, 150 M IX-1-66

Roadside stop in poor savanna, burned last season. A few young of 2 spp. in bark crevices. Some banded sps and one even tan in flat galleries like *Nodosembia*.

G-2 GHANA: 5 MI. S. GALUMPE, 100 M IX-2-66

Stop in high savanna. Same small banded young in bark crevices

G-3 GHANA: KINTAMPO 200 M, IX-2-66

About 6 of the above species in similar niche + environment. Almost rain forest in low spots. B+w ledge sp. seen here.

G-4 GHANA: ACOMADAN, 350 M, IX-2-66

High rain forest with undergrowth cleared for cocoa. Collected tiny pale embiids - perhaps teratembiid under edges of thin bark flakes on buttressed large tree trunk. Also large number of B+w banded *Taeniotembia*

Plesiotembia

G-5

Same place but only *Taeniotembia* on dead stumps old and rotting. Large *Acantebia*

G-6

GHANA: 16 MI. N. KUMASI 250 M IX-2-66 Camps up old log road. Same environment as above. B+w larger sp under bark flakes appears to be same as Barnako rock ledge sp. etc.

G-7 Same place
Parachiembia brunnea culture from vine-braided tree trunk

G-8 GHANA: 2 MI. S. KANONGA, 230 M, IX-3-66
A high rain forest with substory cleared for cocoa etc.
B+w young collected under stiff bark flakes near base of buttressed trunk. Not much silk visible until flake is removed.
Collected 2 adult ♂ Plesiembia. Each alone in its short gallery.

G-9 GHANA: MPRAESO, 500 M, IX-3-66

Former rain forest. Collected Parachiembia in large galleries on large planted trees bordering rest house entrance road.
Adult ♀, eggs, 1-2nd instar.

G-10 Same place and trees

Smaller sp. about 15 mm long some penult ♂ on trunks and old stumps large numbers in single colony

G-11 Same place

Culture contains 3 spp. Plesiembia, G-10 sp. and a small, shiny brown + black sp. with penult ♂ ^{1st caught}

G-12 GHANA: DAWA, IX-7-66

Grassy plain dotted with scrub clumps in depressions. Not far above sea level. Dry conditions. Embiid webs common on certain low trunks, cultured, seems to be saundersii. Other webs under small stones, not cultured, may be something else

N-1

NIGERIA: 5 MI. W. ALAGBA (W. OF OTTA), IX-8-66 Near sea level
Small sp. on rain forest trunks, galleries following small vines, chips and at times ramifying as in Nodosembia. Some penult males. Located in patch of cut up rain forest in native garden area.

N-2

Same place

Parachiembia ♀ and some 2nd instar young on large tree. One colony too high to really collect. Got ♀ and possibly some young.

N-3

NIGERIA: 30 MI. S. IBADAN, 50 M, IX-9-66
Rain forest with heavy undergrowth of cacao, 2nd growth etc.
Few large trees along creek.
Culture contains 1 red + black ♀ and its brood which occupied a patch colony on a ridge of coarse bark on a buttress of large tree in shade. all young about 2-3 instar

PLESIEMBIA

N. SP.

Red + black sp. young instar

N-4 Same place as N-3 at stop 47
 tiny species on bark of many kinds of trees. Some present.
 one adult seen but lost *DIRADIVUS* in SF day when

N-5 NIGERIA: 10 MI. N. IBADAN, 250 M IX-9-66 at Stop 48
 3 sp including sauderii in hard coarse bark of large roadside
 Acacia in transition forest-savanna zone. One is present of
 black sp with white cerci

N-6 NIGERIA: 22 mi S. OGBOMOSH0, 350 M, IX-9-66, at stop 49
 Orange and black young of various sizes up to $\frac{3}{8}$ " mixed with
sauderii on trunks of palms in open fields in high-grass
 savanna zone. The former distinguished by their more grayish
 silk devoid of grass specks.

N-7 NIGERIA: OGBOMOSH0, 375 M, IX-9-66 at stop 50
 B + W Qs
pathogenetic
Tanystomia
 Trunks of shade trees in yard of rest house at S. end of town
Sauderii common. Culture contains B + W Qs + eggs, a plain tan
 female $\frac{1}{2}$ " long (*Leptostomia*?), tiny species

N-8 NIGERIA: ILORIN, 300 M, IX-10-66 at stop 51
 B + W Qs
 Trunks of coarse-barked savanna acacias (?) in area thinned
 by native agie. Sauderii common. Nodosentia and one other sp.
 collected. Sept, Berland *Scelentia*

N-9 NIGERIA: OKE-OYI (20 MI. N.E. ILORIN), 300 M, IX-10-66 at stop 52
 shade trees scattered on school grounds. Nodosentia present
 (webs pure-white, grass-free), a large banded species, sauderii
 most common. also a red and brown sp.
Scelentia

N-10 NIGERIA: 8 MI. S. JEBBA, 300 M, IX-10-66 at stop 53
 Small trees along road in savanna zone, in bark crevices
 soft bark. Red + brown species common, in various stages

N-11 NIGERIA: 19 MI. N. BOKANI, 250 M IX-10-66 at stop 54
 Dense, lush, virgin, savanna woodland. Very brown &
 and brown in bark scar. Webs gray, thin, grass-free.
 1st instar young *Scelentia*

N-12 NIGERIA: Same as N-12
Nodosentia (etc.?) in bark crevices. Sauderii absent here.
Scelentia, Berland

N-13 NIGERIA: 9 MI. E. KONTAGORA, 300 M, IX-11-66 = STOP 55

Red + tan species and others? in usual bark crevices, flakes, especially in twigs and small branches. Savanna woods in full leaf dark *Sceloenobia* st with orange head

N-14 NIGERIA: 4 MI. N. KAGARA (E. OF KONTAGORA), 360 M, IX-11-66

Bark of splintered branches + stumps of acacias along road. Red and tan sp. + blackish-brown banded sp. from 2nd to 3rd instar. Granite hills with dense jungle among boulders at base.

N-15 NIGERIA: Same place but in the base jungle
Minute teratombiid under bark flakes of various ^{in shade} trees. ^{Galleries} at times radiate on bark wood surfaces. These have a glossy sheen.

N-16 } NIGERIA: KADUNA, M, IX-12-66

N-17 } *Sceloenobia* common on shade trees trunks in town
Parent webs large, pure white devoid of gross. 1-3rd instar webs radiating out in a pattern. Hundreds of young per nest.

above sent to SF.

N-18 NIGERIA: 45 MI. S.W. KANO, 680 M = STOP 58 IX-13-66

Large species under stones on rocky ridge rising from arid plain. Hill had scrubby savanna nearly in original condition. Rocks occasionally had clean silk galleries adhering to side or underside, esp. in dry pockets webs contained in curled brown leaves and to holes in ground, these not used because of excessive soil moisture. One embiid per locb.

N-19 NIGERIA: 28 MI. N.E. ZARIA, 720 M, IX-14-66 = STOP 60

2-3 spp. of embiids under bark flakes and small stones near rocky laterite ledge in cut-over savanna *Sceloenobia*

N-20 NIGERIA: 36 MI. S.E. SOBA, 790 M, IX-14-66 = STOP 62

1♀ ^{OK} *sceloenobia* and a few 3rd instar in clean silk galleries on face of shaded granite ledge.

N-21 NIGERIA: 10 MI. N.W. JOS, 1225 M, IX-14-66

2-3 species incl. 1 black ♀ (n. sp.), and red + black under small laterite stones in denuded rolling hills.

R & C *Plesioenobia*

Laterite stones

N-22 NIGERIA: JOS, 1250 M, IX-15-66

Scolombia very common on shade tree bark in town, also on surface of granite boulders. Adult females with 1st - 3rd instar young. Many of these per colony.

N-23 NIGERIA: 6 MI. S. JOS, 1250M, IX-16-66

2-3 spp under granitic stones and flakes, esp. rock on rock embiids singly in small galleries at stone edge. One sp. is large and gold-and-brown similar to N-18

N-24

Same place EMBIA N. SP.

On rock surfaces and beneath

same as N-25

some field notes as N-25

XII-27-67

N-25

Same place inside

EMBIA N. SP.

In crevices ¹ of hollowed-out termite mound. Surfaces coated with lichen crust. Tunnels in burrows and galleries radiate on surface. XII-27-67 Culture killed numerous adult ♀ and some or few nymphs except 1st instar and eggs. Eggs laid in loose clusters in web/wall mixed with frass.

N-26

Large black species

NIGERIA: 15 MI. S.W. BUKURU, 925 M, IX-16-66

Mostly under moss coating on palm trunk rising from shade of ravine in rugged escarpment terrain. Other galleries in ordinary crevices of dead trunks and branches of scrubby trees. Young in about 2nd instar.

N-27

Same place.

Small spp, some teratembids in tiny galleries on trunks one red & brown nymph and probably Nodosembia.

N-28

Same place

Scolombia (?) on and under bark flakes

N-29

NIGERIA: 8 MI. S.W. BUKURU, 1150 M, IX-17-66

Large galleries leading under coarse lichen-crusted bark flakes of gigantic native tree. Largest seen on plateau and remnant of ancient forest. Galleries at least 10 ft up and visible on high branches. Adult ♀ with early young in large numbers ramifying on underside of flakes. Seems to be same species as ramifying on underside of flakes. N-26

PLATYEMBIA

N-30

NIGERIA:

7 MI. E. BAUCHI, 570M, IX-17-66

Low, dense savanna on latite flat. 2 sp. in culture, one in patches of silk in bark flaked in shaded trunks in tree clumps, another (red & brown) under bark of small stems. This sp. most numerous in culture

Berlanderi

N-31 NIGERIA: 3 MI. S.W. LANZAI, BAUCHI PROV., 430 M, IX-18-66

Low, dense, brush like savanna 2-3 spp in dead bark of branches. Most numerous a pale species (Berlandenia) which has ♀ nests and 2nd instar in hollow twig ends. Silk white, naked.

Leptesbia + Berlandenia.

N-32 NIGERIA: 22 MI. E. DAMATURA, 400 M IX-19-66 Rush stops

took pictures of herds + boys wearing hats
2-3 spp in bark crevices of trees in thicket of larger trees
in flat savanna much cut over for agrie.

N-33 NIGERIA: MAIDUGURI, 365 M. Agrie center on Chad Road
large galleries at base of rough-barked acacia, very large dense crown. Appears to be Emilia ♀s and 2-3rd instar young. Some galleries in matted leaves and piles of peanut shells.

N-34 NIGERIA: same place

2 spp? in dead bark of fence posts and in matted leaves at base of large trees bordering road. Most have white-tipped antennae. 1 large pale Leptesbia ♂

N-35 Same place. Some maturing ♂ of white-tipped sp.

N-36 Larger culture of above species. Most under loose bark of fence posts. Webs radiating extensively. Young, about half grown tend to crowd in one section of system.

N-37 NIGERIA: FOOTHILLS BEHIND GWOZA, 400 M, IX-27-66

galleries radiating from crevices on face of shaded granite ledge. Adult ♀ and young. Webs naked. Steep slope of granite boulders with corn fields of pagans between.

N-38 NIGERIA: GUDEF, IN HILLS BEHIND GWOZA, 800 M, IX-27-66

Similar niche above in cooler zone with large trees, Palms etc.

Distinct species with 1st instar young.

Camped at SUM mission hospital

N-39 NIGERIA: 7 MI. N. YUBA, 500 M, (STOP 76) IX-28-66

Flat, dense savanna west of Mandara Mts, somewhat thinned for grazing. 1-2 spp in bark crevices of ^{dead} limbs of small trees.